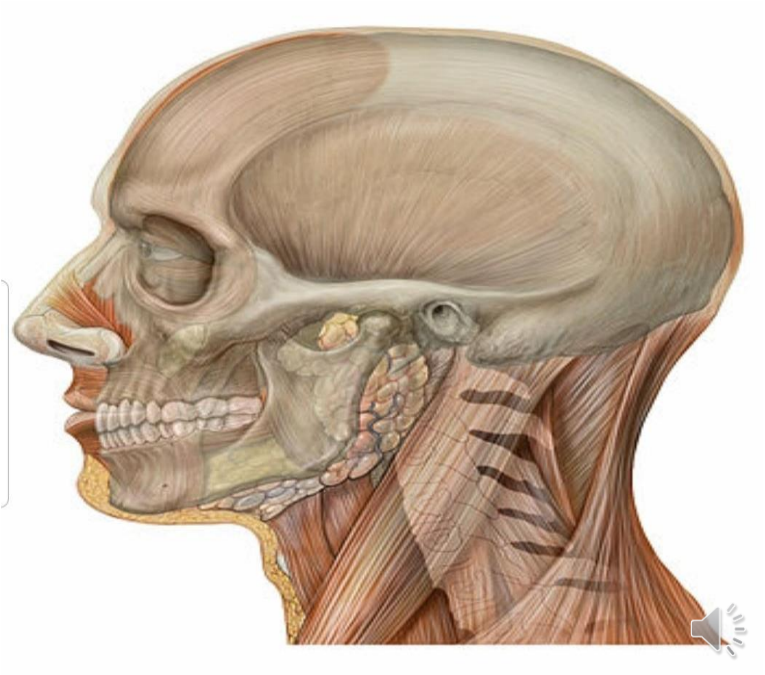
# Introduction
# to
# Human Anatomy



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الدكتورة الأختصاص
فرقد صالح جواد

## What is Anatomy?

Anatomy is the science that study the structure of the human body. It examine the inside and the outside of the body. Anatomy notes the  position and structure of organs such as muscles,
glands and bones  etc.
The term anatomy is applied usually to human anatomy. The word is derived indirectly from the Greek anatome, a term built from ana, meaning "up," and tome, meaning "a cutting”
Anatomy is Closely related to PHYSIOLOGY!
Physiology is the study of the FUNCTION of the human body

# Divisions of Anatomy

## Gross Anatomy

Structures that can be seen with the eye such as Muscles, bones, various organ

## Microscopic Anatomy

Structures that cannot be seen with the eye but need to use a microscope

Cytology = study of cells

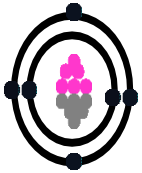
Histology = study of tissues

# Levels of Structural Organization

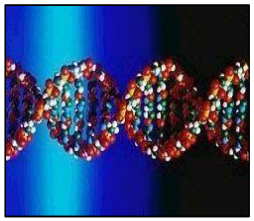
مستويات التنظيم الهيكلي

- Six levels of structural organization
  1. Atoms
  2. Cells
  3. Tissues
  4. Organs
  5. Organ systems
  6. Organisms

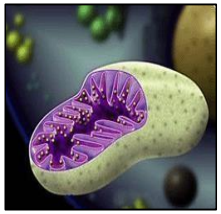
# Levels of Structural Organization



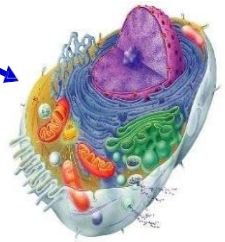
carbon atom



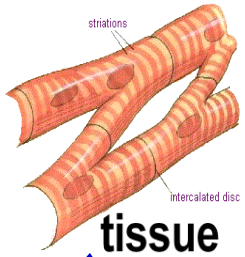
DNA molecule



organelle

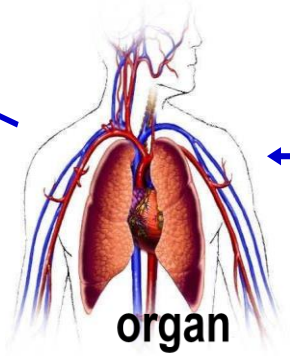


cell



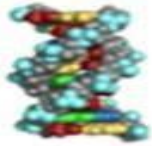

tissue

organ



organ system

organism

| Level of Organization | Explanation | Example |
| --- | --- | --- |
|  Atomic Level | Atoms are defined as the smallest unit of an element that still maintains the property of that element. | Carbon, Hydrogen, Oxygen |
|  Molecular Level | Atoms combine to form molecules which can have entirely different properties than the atoms they contain. | Water, DNA, Carbohydrates |
|  Cellular Level | Cells are the smallest unit of life. Cells are enclosed by a membrane or cell wall and in multicellular organisms often perform specific functions. | Muscle cell, Skin cell, Neuron |

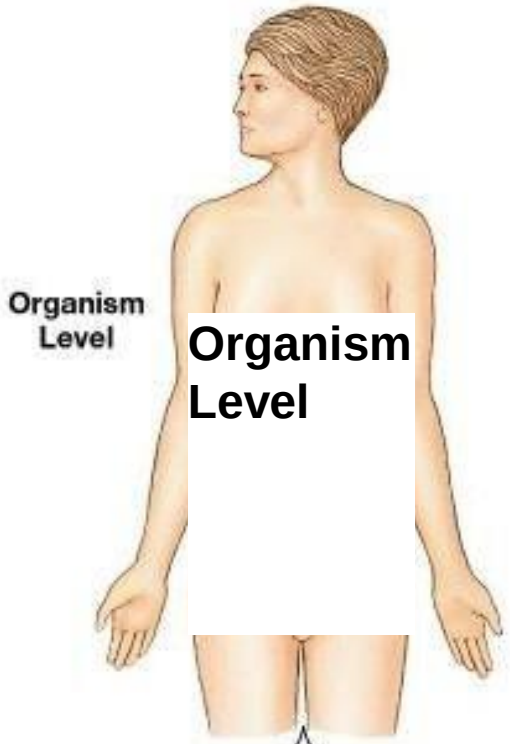
| | | |
|---|---|---|
|  Tissue Level | Tissues are groups of cells with similar functions | Muscle, Epithelial, Connective |
|  Organ Level | Organs are two or more types of tissues that work together to complete a specific task. | Heart, Liver, Stomach |
|  Organ System Level | An organ system is group of organs that carries out more generalized set of functions. | Digestive System, Circulatory System |
|  Organismal Level | An organism has several organ systems that function together. | Human |

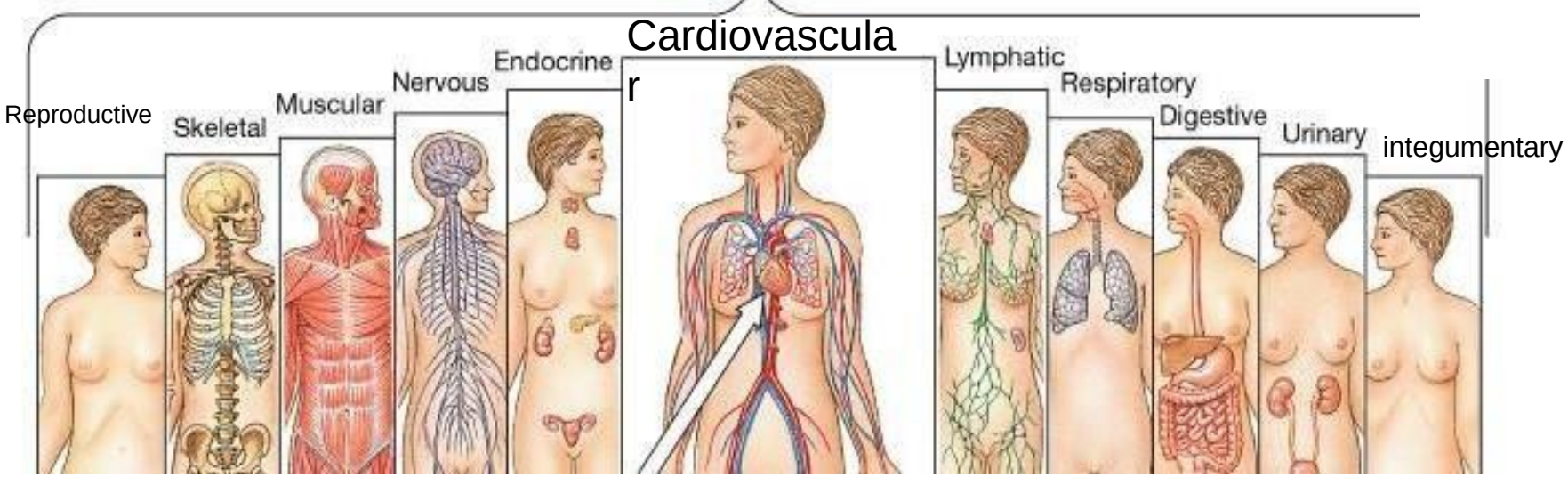
# Ways to Study Anatomy

Regional Anatomy – study one region of the body at a time and learn everything about the region. This is the approach we will use in this course

Systemic Anatomy – study one body system at a time.

# 11 Systemic Anatomy



# Organ Systems

## Integument:

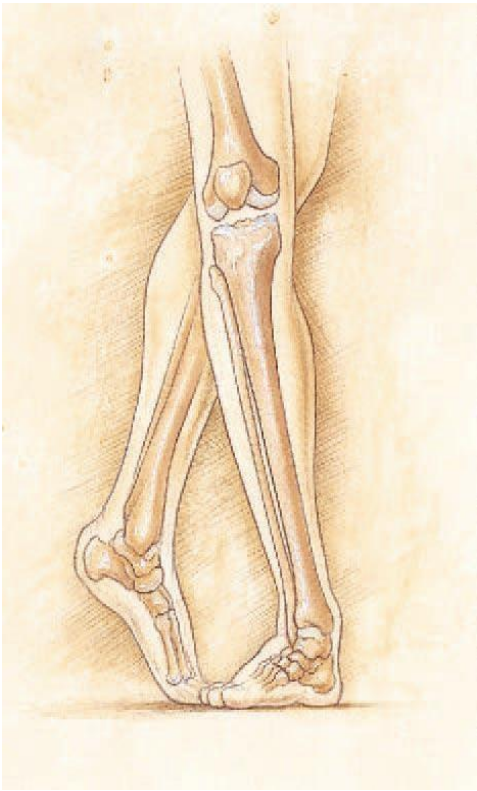
*In biology, integument is the natural covering of an organism or an organ, such as its skin.
It derives from integumentum, which means "a covering" in Latin.

*Function: external support and protection of body

# Skeletal system

The body **system** composed of bones, cartilages, ligaments and other tissues that perform essential functions for the human body. Bone tissue, or osseous tissue, is a hard, dense connective tissue that forms most of the adult **skeleton**.

Function internal support and flexible framework for body movement; production of blood cells; storage of minerals



# Muscular

is an organ system consisting of **skeletal, smooth and cardiac** muscles.

Function:

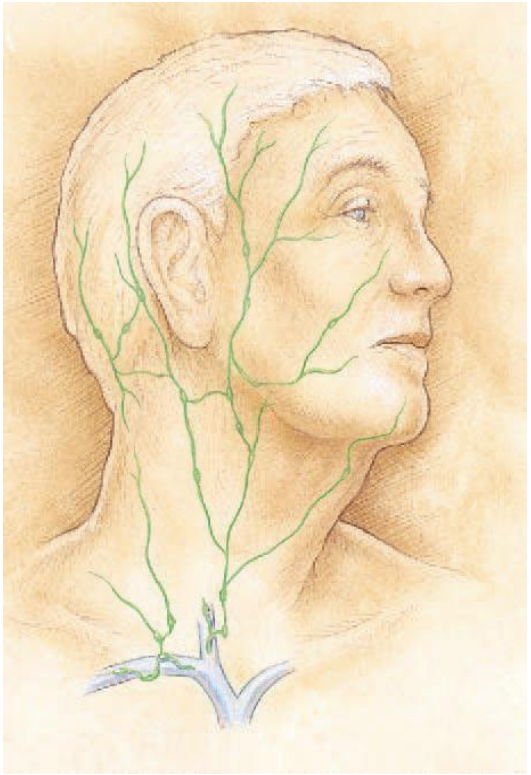
1-It permits movement of the body, maintains posture, and circulates blood throughout the body.

2-production of body heat

# Lymphatic system

is a network of tissues and organs that help the body to get rid of toxins, waste and other unwanted materials.

The primary function of the **lymphatic system** is to transport **lymph**, a fluid containing infection-fighting white blood cells, throughout the body.



Function:

1-body immunity;

2- absorption of fats;

3-drainage of tissue fluid.

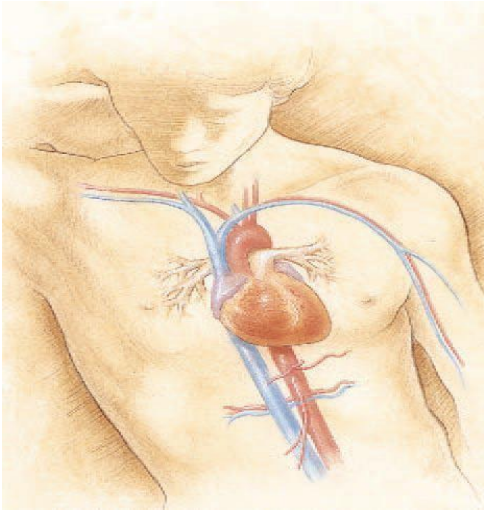
# Endocrine system

The endocrine system is a chemical messenger system consisting of hormones, the group of glands of an organism that carry those hormones directly into the circulatory system to be carried towards distant target organs, and the feedback loops of homeostasis that the hormones drive.

Function: secretion of hormones for chemical regulation

# Circulatory system

is an organ system that permits blood to circulate and transport nutrients (such as aminoacids and electrolytes), oxygen, carbon dioxide, hormones, and blood cells to and from the cells in the body to provide nourishment and help in fighting diseases,stabilize temperature and pH, and maintain homeostasis.;removal of metabolic wastes from cells



# Nervous system

Nervous System Organization consist of :
Central Nervous system CNS = brain and spinal cord

Peripheral Nervous System PNS = all other neural tissue Structures in the nervous system

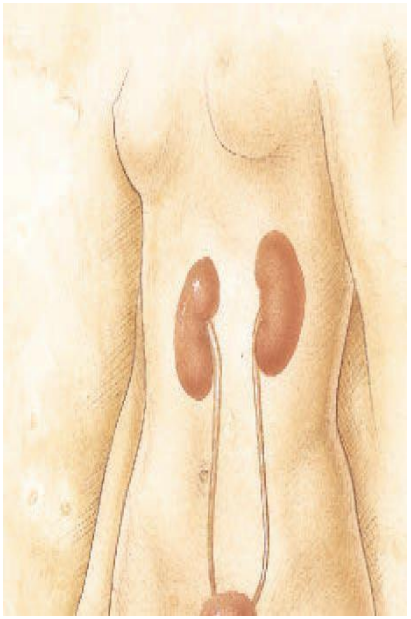
Function: control and regulation of all other systems of the body

# Urinary system

The **urinary system**, also known as the renal **system** or **urinary tract**, consists of the kidneys, ureters, bladder, and the urethra.

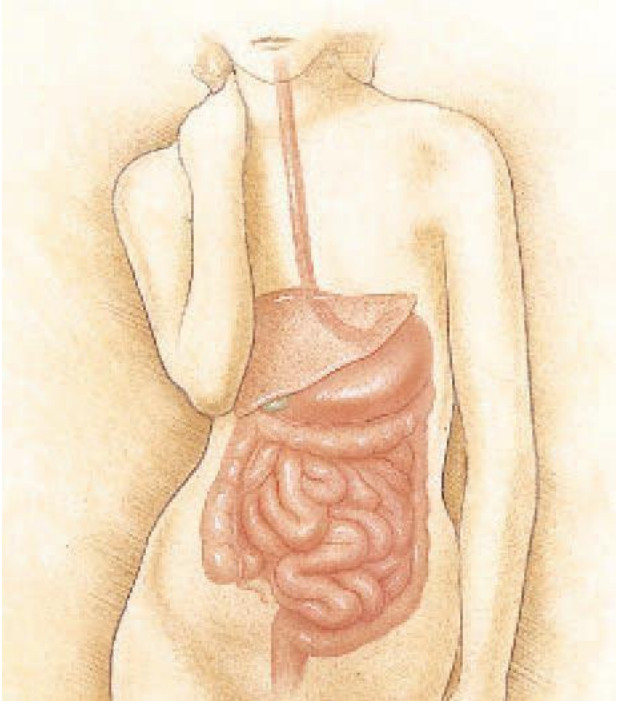
The purpose of the **urinary system** is to eliminate waste from the body, regulate blood volume and blood pressure, control levels of electrolytes and metabolites, and regulate blood pH.

Function: filtration of blood; maintenance of volume and chemical composition of blood; reamoval of metabolic wastes from body



# Digestive system

The **digestive system** is a group of **organs** working together to convert food into energy and basic nutrients to feed the entire body. Food passes through a long tube inside the body known as the alimentary canal قناة هضميه or the **gastrointestinal** tract (GI tract).



# Reproductive system

## Female reproductive system

Function: 1-production of female sex cells (ova) and female hormones,

2- receptacle for sperm from male,

3-site for fertilization of ovum,

4-implantation, and development of embryo and fetus;

5- delivery of fetus

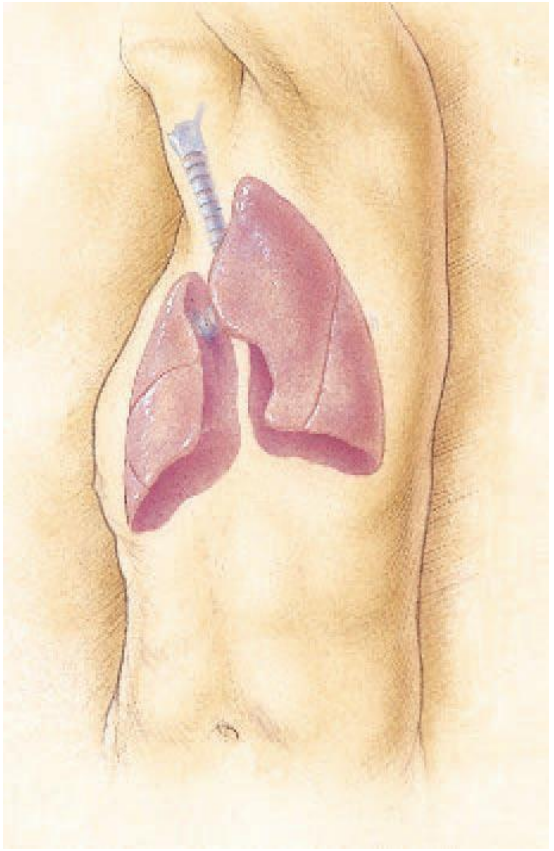
## Male reproductive system

Function: production of male sex cells (sperm)

# Respiratory system

The human **respiratory system** is a series of **organs** responsible for taking in oxygen and expelling carbon dioxide.

The primary **organs** of the **respiratory system** are lungs, which carry out this exchange of gases as we breathe.



THANK YOU